ZooKeys 908: 39–44 (2020)
doi: 10.3897/zookeys.908.48316
http://zookeys.pensoft.net

REVIEW ARTICLE

A peer-reviewed open-access journal
ZooKeys
Launched to accelerate biodiversity research

A new leafhopper genus of Empoascini (Hemiptera, Cicadellidae, Typhlocybinae) from China

Xiaofei Yu[1,3], Rui Shi[2], Maofa Yang[1,2]

1 *College of Tobacco Science, Guizhou University, Guiyang, Guizhou, 550025, China* **2** *Institute of Entomology, Guizhou University, Guiyang, Guizhou, 550025, China* **3** *Guizhou Key laboratory of Tobacco Quality Research, Guiyang, Guizhou, 550025,China*

Corresponding author: *Maofa Yang* (gdgdly@126.com)

Academic editor: *Mick Webb* | Received 8 November 2019 | Accepted 31 December 2019 | Published 3 February 2020

http://zoobank.org/7693A6F7-BBD1-495C-8392-8D4DB2E9382A

Citation: Yu XF, Shi R, Yang MF (2020) A new leafhopper genus of Empoascini (Hemiptera, Cicadellidae, Typhlocybinae) from China. ZooKeys 908: 39–44. https://doi.org/10.3897/zookeys.908.48316

Abstract

A new leafhopper genus, *Fanjinga* **gen. nov.**, with type species *F. digitata* Yu & Yang, **sp. nov.**, is described from the Guizhou Province of Southwest China. Habitus photos and illustrations of male genitalia of the new species are provided.

Keywords

Auchenorrhyncha, Empoascini, taxonomy, new genus, China

Introduction

The *Alebroides* group of Empoascini leafhoppers includes 25 genera and 156 species, widely distributed in the Palaearctic Region and Old World tropics (Xu et al. 2016). Of these taxa, 16 genera and 60 species are known from China (Xu et al. 2016, 2017, Yu and Yang 2013, 2014a, b). A key to the group, characterized by the branched CuA vein in the hind wing (Fig. 13), was given by Xu et al. (2017). This paper adds a new genus with one new species, based on material from Guizhou (Southwest China).

Copyright *Xiaofei Yu et al.* This is an open access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Materials and methods

Body measurements are from apex of vertex to tip of forewing. Habitus photos were taken using a VHX-5000 digital microscope; illustrations of male genitalia were inked in Adobe Illustrator CS6, then digitized (300dpi). For morphological terminology we mostly follow Zhang (1990), but the wing venation follows Dworakowska (1993), the legs follow Dietrich (2005) and chaetotaxy of the subgenital plate follows Southern (1982). The new specimens examined are deposited in Institute of Entomology, Guizhou University, Guiyang, China (GUGC) and School of Karst Science, Guizhou Normal University, Guiyang, China.

Taxonomy

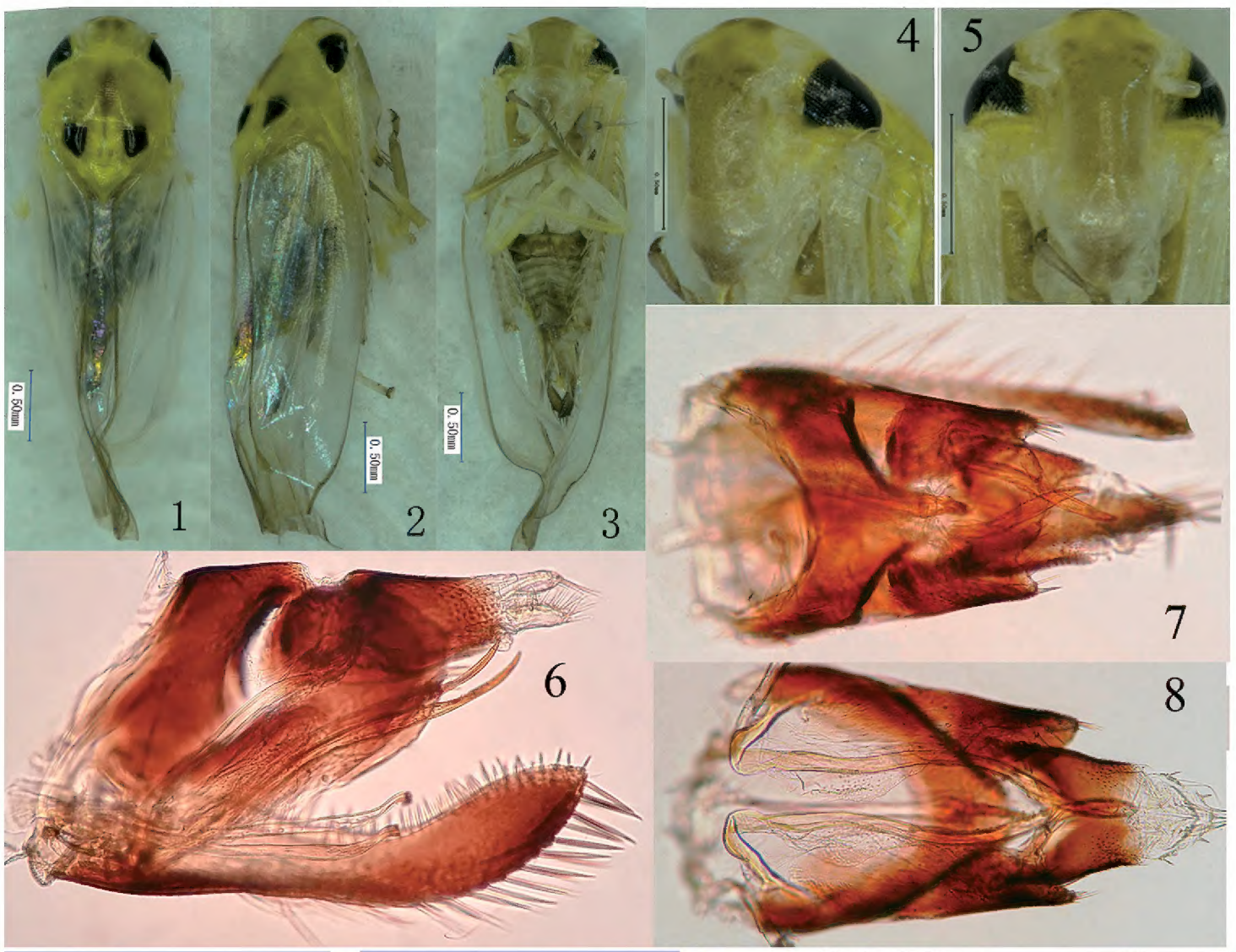
***Fanjinga* Yu & Yang, gen. nov.**
http://zoobank.org/F1EB5835-F39D-4C1A-862C-3F55C8618661

Type species. *Fanjinga digitata* Yu & Yang, sp. nov., here designated.

Diagnosis. Within the *Alebroides* group of Empoascini, the new genus runs to *Nulliata* Lu, Xu & Qin in the key to genera by Xu et al. (2017), based on the following characters (in order of couplets): MP' vein arising from r cell, coronal suture not extending onto face, anal tube appendage absent, crown face transition without a dark medial patch and male pygofer not emarginated dorsally, aedeagus with preatrium long. The new genus differs from *Nulliata* in having the abdominal apodemes long and from *Nulliata* and other genera in having a finger-like process bearing micro-setae on the lower posterior margin of the male pygofer.

Description. Relatively robust (Figs 1–3). Head slightly narrower than pronotum; vertex short, slightly longer medially than next to eyes, coronal suture reaching to anterior margin of vertex. Ocelli present. Face broad, distinctly broadened at lower part, convex in profile (Figs 3–5). Pronotum nearly twice as long as vertex (Fig. 1). Forewing with apical cells occupying almost 1/3 of total length, veins RP and MP' stalked at base, arising from r cell, and MP"+CuA' from m cell, r cell longer than m cell, but narrower than m cell, third apical cell triangular (Fig. 12). Hindwing with CuA branched, termination of branch distad of coalescence of CuA with MP" (Fig. 13). Front femur with AM1 enlarged, with one antero-basal macroseta and 8 small setae near tip of femur. Hind femur with macrosetae 2+1+1, hind tibia row AV with 10 macrosetae near apex.

Male basal abdominal sternal apodemes well developed (Fig. 14). Male pygofer elongate, dorsolateral fracture distinct, dorsal bridge moderately long, with several rigid microsetae at posterior margin; ventral appendage well developed, extended beyond posterior margin; lower posterior margin with a finger-like process (Figs 6–8, 15–18). Subgenital plate extended slightly beyond pygofer, A-group setae present, B-group setae following A-group setae to tip of dorsal margin, C-group setae arranged in two rows in basal half, then merged into single row to apex; D-group setae thick (Fig 22). Paramere very thin, curved



Figures 1–11. *Fanjinga digitata*, sp. nov. **1** male adult, dorsal view **2** male adult, lateral view **3** male adult, ventral view **4** head and thorax, ventrolateral view **5** head and thorax, ventral view 6 male genitalia, lateral view **7** male genitalia, dorsal view **8** male genitalia, ventral view **9** anal tube, connective and pygofer, ventral view **10** paramere, terminal part **11** aedeagus, terminal part. Scale bars: 0.5mm.

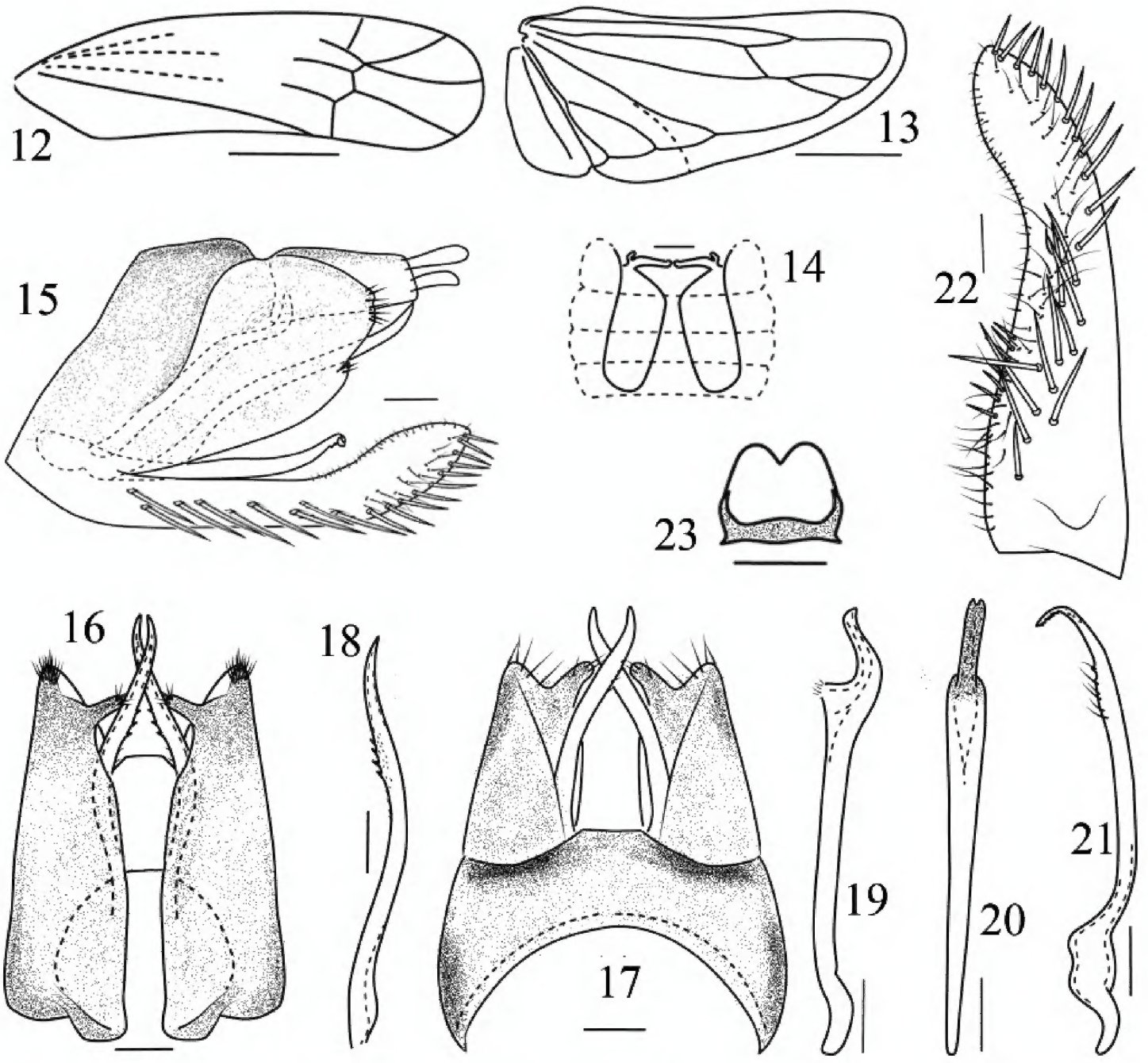
apically, apex with teeth and sensory pits (Fig 10, 21). Aedeagus slender, preatrium very long, dorsal apodeme absent (Figs 9, 11, 19–20). Anal tube appendage absent (Fig. 9). Connective almost square shaped, apical margin medially concave (Fig. 23).

Etymology. The genus name is an arbitrary combination of letters.
Distribution. China (Guizhou).

Fanjinga digitata **Yu & Yang, sp. nov.**
http://zoobank.org/F427C9A4-AEFC-472A-AFAB-B158C408A80E

Description. Size. Male 3.94–4.00mm.

Whole body yellowish, anterior margin of vertex marked with two brownish patches (Figs 1–3). Pronotum with a longitudinal streak centrally (Figs 1, 2). Scutellum with basolateral triangles black (Figs 1, 2). Abdomen yellowish (Fig. 3). Legs yellowish, except tibia; tarsus and claws of front legs brownish.



Figures 12–23. *Fanjinga digitata*, sp. nov. **12** forewing **13** hindwing **14** abdominal apodemes **15** male genitalia, lateral view **16** pygofer, ventral view **17** pygofer, dorsal view **18** ventral pygofer appendage **19** aedeagus, lateral view **20** aedeagus, ventral view **21** paramere, lateral view **22** subgenital plate, lateral view **23** connective, dorsal view. Scale bars: 0.1mm.

Basal sternal abdominal apodemes extending to end of segment VI (Fig. 14). Male pygofer with microsetae at posterior margin, pygofer ventral appendages with teeth on dorsal side, extending beyond posterior margin; lower posterior margin with a finger-like process bearing several microsetae; dorsal bridge occupying more than 1/3 length of pygofer in dorsal view (Figs 6–8, 15–18). Subgenital plate with basal 2/3 curved dorsad in lateral view, with 7 A-group setae, ca. 30 B-group setae, 23 C-group setae and ca. 49 D-group setae (Fig. 22). Paramere with few microsetae and sensory pits subapically (Figs 10, 21). Aedeagus shaft curved dorsad, gonopore apical; preatrium very long, almost 3 times length of shaft; dorsal apodeme absent (Figs 19, 20). Connective notched medially at apex, slightly broader at base (Fig. 23).

Holotype. ♂, China, Guizhou, Fanjing Mountain, 21-August-2017, coll. Yarong Gao (GUGC). Paratypes: 3♂, same collecting data as holotype (1♂ GUGC, 2♂ School of Karst Science, Guizhou Normal University).

Etymology. The new species is named from the Latin "digitalis", meaning finger, for the finger-like process of the male pygofer.

Host plants. *Euonymus* (Celastraceae).

Distribution. China (Guizhou).

Acknowledgements

We are very grateful to Mr. Mick Webb (Department of Life Science of The Natural History Museum, England) for checking the manuscript, Dr. Irena Dworakowska for her help identifying the new genus and providing comments, and Yarong Gao (School of Karst Science, Guizhou Normal University) for providing research materials. This project was supported by the Program of Natural Science Foundation of China (No.31802002); Cultivating program of National Natural Science Foundation of Guizhou University (Qiankehe Platform talent No. [2017]5788-32); Science and Technology Program of Guizhou (Qiankehe Platform talent No. [2018]5781); Excellent Innovation Talents, Guizhou Province, China (No. 20164022); Youth Talents Growth Project of Department Education of Guizhou Province, China (Qian Jiao He KY No. [2018]103) and Talent Introduction Program of Guizhou University (GuiDa Ren Ji He No. [2016]70).

References

Dietrich CH (2005) Keys to the families of Cicadomorpha and subfamilies and tribes of Cicadellidae (Hemiptera: Auchenorrhyncha). Florida Entomologist 88: 502–517. https://doi.org/10.1653/0015-4040(2005)88[502:KTTFOC]2.0.CO;2

Dworakowska I (1993) Remarks on *Alebra* Fieb. And Eastern Hemisphere Alebrini (Auchenorrhyncha: Cicadellidae: Typhlocybinae). Entomotaxonomia 15(2): 91–121.

Southern PS (1982) A taxonomic study of the leafhopper genus *Empoasca* (Homoptera: Cicadellidae) in eastern Peru. Technical Bulletin 272. North Carolina State University, Raleigh, 194pp.

Xu Y, Wang YR, Lu SH, Dietrich CH, Qin DZ (2016) *Rubiparvus bistigma*, a new genus and species of Empoascini (Hemiptera, Cicadellidae, Typhlocybinae), with a checklist of the *Alebroides* group in Chinese fauna. Zootaxa 4109(5): 583–589. https://doi.org/10.11646/zootaxa.4109.5.6

Xu Y, Lu S, Wang YR, Dietrich CH, Qin DZ (2017) Two new leafhopper genera of the *Alebroides* genus group (Hemiptera: Cicadellidae: Typhlocybinae) from China, with a key to genera of the group. Entomological Science 20(1): 1–11. https://doi.org/10.1111/ens.12260

Ye X, Dietrich CH, Zhao W, Qin DZ (2017) *Condensella* and *Endogena*, two new genera of the *Alebroides* genus group (Hemiptera: Cicadellidae: Typhlocybinae) from the oriental region with notes on the phylogeny of Empoascini. European Journal of Entomology 114: 462–469. https://doi.org/10.14411/eje.2017.059

Yu XF, Yang MF (2013) Two new species of *Membranacea* Qin & Zhang from China (Hemiptera, Cicadellidae, Typhlocybinae, Empoascini). Zookeys 260: 77–83. https://doi.org/10.3897/zookeys.260.4560

Yu XF, Yang MF (2014a) Four new species of *Alebroides* Matsumura (Hemiptera: Cicadellidae: Typhlocybinae) from China. Zootaxa 3780(2): 248–262. https://doi.org/10.11646/zootaxa.3780.2.2

Yu XF, Yang MF (2014b) Key to species of the leafhopper genus *Membranacea* Qin & Zhang (Hemiptera, Cicadellidae, Typhlocybinae, Empoascini), with a new species from China. Zootaxa 3878(1): 97–100. https://doi.org/10.11646/zootaxa.3878.1.8

Zhang YL (1990) Taxonomic study of Chinese Cicadellidae (Homoptera). Tianze Eldonejo, Yangling Shaanxi, 218pp.